Claims

1. An implant adapted for placing between spinous processes, the implant comprising:

a body with a shaft extending therefrom;

a spacer that is rotatably mounted on said shaft;

said spacer including:

(a) a spacer shaft having a bore extending through;

(b) an outer shell with a cavity between the spacer shaft and the outer shell; and

(c) a compressible medium inserted into the cavity between the spacer shaft and the outer shell.

2. The implant as recited in Claim 1, wherein the outer shell is connected with the spacer shaft by at least a support column extending from the spacer shaft.

3. The implant as recited in Claim 1, wherein the outer shell is elliptical in shape.

4. The implant as recited in Claim 1, wherein the outer shell is cylindrical in shape.

5. The implant as recited in Claim 1, wherein the outer shell is egg-shaped.

6. The implant as recited in Claim 1, wherein the outer shell has at least one slot, said slot extending at least part way along the length of the outer shell to weaken the rigidity of the outer surface.

7. The implant as recited in Claim 6, wherein the compressible medium fills in the slot and is substantially flush with the outer edge of the outer shell.

8. The implant as recited in Claim 1, wherein the compressible medium inserted into the cavity between the spacer shaft and the outer shell is silicone.

9. The implant as recited in Claim 1, wherein the compressible medium is a high molecular weight polymer.

10. The implant as recited in Claim 1, wherein the compressible medium has a graduated stiffness.

11. The implant as recited in Claim 1, wherein the outer shell protects the compressible medium from directly contacting the spinous processes.

12. The implant as recited in Claim 1, wherein the outer shell has at least two openings extending along at least part of the length of the outer shell; and said openings communicate with the cavity and are filled with the compressible medium, with the compressible medium in the openings adapted to contact the spinous processes.

13. The implant as recited in Claim 12, wherein the compressible medium has a graduated stiffness.

14. An implant adapted for placing between spinous processes, the implant comprising:

a body with a shaft extending therefrom;

a spacer that is rotatably mounted on mid shaft;

said spacer formed in the shape of a spool and including:

(a) a spacer shaft, having a bore extending through;

(b) a first end having an outer edge and extending from the spacer shaft;

(c) a second end having an outer edge and extending from the spacer shaft;

and

(d)a compressible medium surrounding the spacer shaft.

15. The implant as recited in Claim 14, wherein the first and second ends are circular in shape.

16. The implant as recited in Claim 14, wherein the first and second ends are elliptical in shape.

17. The implant as recited in Claim 14, wherein the compressible medium is silicone.

18. The implant as recited in Claim 14, wherein the compressible medium is adapted to contact the spinous process when the spacer is inserted between adjacent spinous processes.

19. The implant as recited in Claim 14, wherein the compressible medium has a graduated stiffness.

20. An implant adapted for placing between spinous processes, the spacer comprising:

a body with a shaft extending therefrom;

a spacer that is rotatably mounted at said shaft;

said spacer including:

(a) a first outer shell having at least one support element, said support element having a bore extending therethrough;

(b) a second outer shell having at least one support element, with the support element of the first outer shell and the support element of the second outer shell, and with

the bores of the first and second support elements having the shaft extending through, forming a hinge-type connection;

(c) a cavity located between the first outer shell and the second outer shell; and

(d) a compressible medium located into the cavity between the first and second outer shell.

21. The implant as recited in Claim 20, wherein the compressible medium is silicone.

22. The implant as recited in Claim 20, wherein the bore extending through each support element is one of elliptical, oval and circular in shape.

23. The implant as recited in Claim 20, wherein the first and second outer shell create two slots extending at least partially along the length of the spacer.

24. The implant as recited in Claim 20, wherein the stiffness of the compressible medium is graduated.

25. The implant as recited in Claim 20, wherein the first and second outer shells are adapted to protect the compressible medium from contacting the spinous processes.

26. An implant adapted for placing between spinous processes, the implant comprising:

a body with a shaft extending therefrom;

a spacer that is rotatably mounted at said shaft;

said spacer including:

(a) an outer shell creating a cavity; and

(b) a compressible medium filling the cavity, having a bore extending through the compressible medium, with the shaft received through the bore.

27. The implant as recited in Claim 26, wherein the outer shell is elliptical in shape.

28. The implant as recited in Claim 26, wherein the outer shell is cylindrical in shape.

29. The implant as recited in Claim 26, wherein the compressible medium is silicone.

30. The implant as recited in Claim 26, wherein the compressible medium is a high molecular weight polymer.

31. The implant as recited in Claim 26, wherein when the thickness of the outer shell is 0.020", the hardness of the compressible medium is approximately 50 durometer.

31. The implant as recited in Claim 26, wherein when the thickness of the outer shell is 0.010", the hardness of the compressible medium is approximately 70 durometer.

32. The implant as recited in Claim 26, wherein the hardness of the compressible medium is graduated, and wherein the hardness of the compressible medium is the lowest where the compressible medium contacts the outer shell, and the hardness of the compressible medium is the highest where the compressible medium is located adjacent to the bore.

33. An implant adapted for placing between spinous processes, the spacer comprising:

a body with a shaft extending therefrom;

a spacer rotatably mounted on said shaft;

said spacer having:

(a) an outer shell;

(b) a support communicating with the outer shell and a cavity formed between the outer shell and the support, with a bore extending through the support, said shaft received in said bore;

(c) at least one protrusion extending from the support to restrict a deflection of the outer shell toward said support; and

(d) a compressible medium within the cavity formed between the outer shell and the support.

34. The implant as recited in Claim 33, wherein the compressible medium is silicone.

35. The implant as recited in Claim 33, wherein the compressible medium is a high molecular weight polymer.

36. The implant as recited in Claim 33, wherein the outer shell is elliptical in shape.

37. The implant as recited in Claim 33, wherein the outer shell is oval in shape.

38. The implant as recited in Claim 33, wherein the outer shell is egg-shaped.

39. The implant as recited in Claim 33, wherein the outer shell is cylindrical in shape.

40. The implant as recited in Claim 33, wherein the hardness of the compressible medium is graduated, wherein the hardness of the compressible medium is the lowest where the compressible medium contacts the outer shell, and the hardness of the compressible medium is the highest where the compressible medium contacts the center support.

41. The implant as recited in Claim 33, wherein the spacer further has two slots extending along the length of the outer shell.

42. An implant adapted for placing between adjacent spinous processes, the implant comprising:

a body with a shaft extending therefrom;

a spacer that is rotatably mounted on said shaft;

said spacer having:

(a) a support, having a bore extending through;

(b) an outer shell connected with the support, creating a cavity between the support and the outer shell; and

(c) a compressible medium within the cavity between the support and the outer shell, where the hardness of the compressible substance is graduated.

43. The implant as recited in Claim 42, wherein the compressible substance is silicone.

44. The implant as recited in Claim 42, wherein the outer shell is elliptical in shape.

45. The implant as recited in Claim 42, wherein the outer shell is cylindrical in shape.

46. The implant as recited in Claim 42, wherein the outer shell has at least one slot.

47. The implant as recited in Claim 42, wherein the compressible medium extends into the slot so that the compressible medium is flush with the outer shell.

48. The implant of claim 42, wherein, the hardness of the compressible substance is the lowest where the compressible substance contacts the outer shell, and the hardness of the compressible substance is the highest where the compressible substance contacts the support.

49. An implant for placing between spinous processes, the implant comprising:

a body with a shaft extending therefrom;

a spacer that is rotatably mounted on said shaft;

said spacer including:

(a) a spacer shaft having a bore extending therethrough;

(b) an outer shell located about the spacer;

(c) first and second openings located in the outer shell:

(d) a compressible medium located in the first and second openings, with the compressible medium adapted to contact the spinous processes with the implant placed between the spinous processes.

50. The implant of claim 49 wherein said outer shell is one of elliptical, oval, cylindrical and egg-shaped.

51. The implant of claim 49 wherein said compressible medium has a graduated stiffness.

52. The implant of claim 49 wherein said compressible medium is silicone.

53. The implant of claim 49 wherein said compressible medium is a high molecular weight polymer.

54. An implant for placing between spinous processes, the implant comprising:

a body with a shaft extending therefrom;

a spacer that is rotatably mounted on said shaft; and

said spacer including:

(a) a first outer shell with first and second supports extending therefrom, with each said first and second supports including a bore defined therein;

(b) a second outer shell with a third support extending therefrom, with the third support including a bore defined therein;

(c) the third support located between the first and second support with the bores, with the shaft received through the bores of the first, second, and third supports;

(d) a cavity located between the first and second outer shells; and

(e) a compressible medium located in the cavity.

55. The implant as recited in Claim 54, wherein the compressible medium is silicone.

56. The implant as recited in Claim 54, wherein the bore extending through each support element is one of elliptical, oval and circular in shape.

57. The implant as recited in Claim 54, wherein the first and second outer shell create two slots extending at least partially along the length of the spacer.

58. The implant as recited in Claim 54, wherein the stiffness of the compressible medium is graduated.

59. The implant as recited in Claim 54, wherein the first and second outer shells are adapted to protect the compressible medium from contacting the spinous processes.

60. An implant for placing between spinous processes, the implant comprising:

a body with a shaft extending therefrom;

a spacer that is rotatably mounted on said shaft; and

said spacer including a compressible medium with a bore provided therethrough, with the shaft received in said bore, such that the spacer can rotate relative to said shaft.

61. The implant of claim 60 wherein said spacer is cylindrical in shape.

62. The implant of claim 60 wherein said spacer is elliptical in shape.

63. The implant of claim 60 wherein said spacer is oval in shape.

64. The implant of claim 60 wherein said space is egg-shaped.

65. The implant of claim 60 wherein said compressible medium is silicone.

66. The implant of claim 60 wherein said compressible medium is a high molecular weight polymer.

67. The implant of claim 60 wherein the hardness of the compressible medium is graduated from less hard at a distance from the bore to more hard closer to the bore.

68. An implant adapted for placing between spinous processes, the implant comprising:

a body with a shaft extending therefrom;

a spacer rotatably mounted on the shaft; and

said spacer having:

(a) an outer shell;

(b) a support communicating with the outer shell and a cavity formed between the support and the outer shell, with a bore formed in the support and with the shaft received in said bore; and

(c) at lease one protrusion extending from the support to restrict a deflection of the outer shell toward the support.

69. The implant as recited in Claim 68, wherein the spacer contains a compressible medium.

70. The implant as recited in Claim 68, wherein the outer shell is elliptical in shape.

71. The implant as recited in Claim 68, wherein the outer shell is oval in shape.

72. The implant as recited in Claim 68, wherein the outer shell is egg-shaped.

73. The implant as recited in Claim 68, wherein the hardness of the compressible medium is graduated, the hardness of the compressible medium is the lowest where the compressible medium contacts the outer shell, and the hardness of the compressible medium is the highest where the compressible medium contacts the center support.

74. An implant adapted for placing between spinous processes, the implant comprising:

a body with a shaft extending therefrom;

a spacer rotatably mounted on the shaft; and

said spacer having:

a support having a bore provided therethrough, with the shaft received in the bore;

an outer shell cantilevered from the support, the outer shell adapted to contact a spinous process.

75. The implant of claim 74 including:

a second outer shell cantilevered to said support.

76. The implant of claim 74 including:

a compressible medium located between the support and the outer shell.

77. The implant of claim 74 including:

a protrusion extending from the support toward the outer shell in order to limit a deflection of the outer shell toward the support.

78. The implant of claim 74 wherein said support includes a first portion and a second portion and wherein said outer shell is cantilevered from said first portion and another outer shell is cantilevered from said second portion.

79. The implant of claim 75 wherein said first and second outer shells are cantilevered from the support from the same location.

80. The implant of claim 75 wherein said first and second outer shells are cantilevered from the support form the same location, but extend in opposite directions.

81. The implant of claim 75 wherein said first and second outer shells together form the shape of one of an ellipse, an oval, a circle, and an egg.

82. The implant of claim 78 wherein said first and second outer shells extend circumferentially about the support.

83. The implant of claim 78 wherein said first and second outer shells extend one of clockwise and counterclockwise about the support.

84. The implant of claim 80 wherein the first and second outer shells are located about and spaced from the support, and wherein the first and second outer shells extend toward each other from the same location on the support.

85. An implant adapted to be positioned between spinous processes, the implant including:

a first support defining a first saddle adapted to receive a spinous process;

a second support defining a second saddle adapted to receive another spinous process;

the first and second supports mated together to form an enclosed cavity;

a compressible medium located in the cavity.

86. The implant of claim 85 wherein said compressible medium includes silicone.

87. The implant of claim 85 wherein said compressible medium includes a high molecular weight polymer.

88. The implant of claim 85 wherein said first and second supports are mated together so as to limit movement of the first and second supports both toward each other and away from each other.

89. The implant of claim 85 wherein said first support has a first peripheral edge and the second support has a second peripheral edge with the first peripheral edge associated with the second peripheral edge so to limit movement of the first and second supports both toward each other and away from each other.

90. The implant of claim 1 wherein the compressible medium is a thermoplastic elastomer.

91. The implant of claim 14 wherein the compressible medium is a thermoplastic elastomer.

92. The implant of claim 20 wherein the compressible medium is a thermoplastic elastomer.

93. The implant of claim 26 wherein the compressible medium is a thermoplastic elastomer.

94. The implant of claim 33 wherein the compressible medium is a thermoplastic elastomer.

95. The implant of claim 43 wherein the compressible medium is a thermoplastic elastomer.

96. The implant of claim 49 wherein the compressible medium is a thermoplastic elastomer.

97. The implant of claim 60 wherein the compressible medium is a thermoplastic elastomer.

98. The implant of claim 85 wherein the compressible medium is a thermoplastic elastomer.

99. The implant of claim 1 wherein the compressible medium is polycarbonate urethane.

100. The implant of claim 14 wherein the compressible medium is polycarbonate urethane.

101. The implant of claim 20 wherein the compressible medium is polycarbonate urethane.

102. The implant of claim 26 wherein the compressible medium is polycarbonate urethane.

103. The implant of claim 33 wherein the compressible medium is polycarbonate urethane.

104. The implant of claim 43 wherein the compressible medium is polycarbonate urethane.

105. The implant of claim 49 wherein the compressible medium is polycarbonate urethane.

106. The implant of claim 60 wherein the compressible medium is polycarbonate urethane.

107. The implant of claim 85 wherein the compressible medium is polycarbonate urethane.